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After a dinner at the Hotel Endicott, Tuesday evening, November 14, an informal reception was held for the members of the union and their friends, at the American Museum of Natural History.

At the closing session of the union, held at the Brooklyn Institute of Arts and Sciences, Mr. Geo. K. Cherrie had a paper on 'The Hoatzin and other South American Birds.' He traced the life history of different species and exhibited specimens of many of them. Mr. Wm. L. Finley spoke of the water birds of southern Oregon, illustrating what he said by many beautiful lantern slides.

The day following adjournment the members of the union visited the aquarium and the New York Zoological Park, and were received and entertained by Directors Hornaday and Townsend, and Curator Beebe.

Following is a list of the papers read at the sessions:

WITMER STONE: 'Some Unpublished Letters of Wilson and some Unstudied Works of Audubon.'

J. A. ALLEN: 'The Evolution of Species through Climatic Conditions.'

ELON H. EATON: 'Summer Birds of the Mt. Marcy Region in the Adirondacks.'

FRANK M. CHAPMAN: 'Pelican Island Revisited.' Illustrated by lantern slides.

B. S. BOWDISH: 'Some Breeding Warblers of Demarest, N. J.' Illustrated by lantern slides.

WILLIAM L. FINLEY: 'Notes on Wing Movements in Bird Flight.' Illustrated by lantern slides.

J. DWIGHT, JR.: 'The Status of Certain Species and Subspecies of North American Birds.'

HERBERT K. JOB: 'Wild-fowl Nurseries of Northwest Canada.' Illustrated by lantern slides.

C. J. PENNOCK: 'Andreas Hesselius, a Pioneer Delaware Ornithologist.'

WITMER STONE: 'The Probability of Error in Bird Migration Records.'

WITMER STONE: 'Some Observations on the Applicability of the Mutation Theory to Birds.'

HENRY OLDYS: 'The Song of the Hermit Tarush.'

FRANK M. CHAPMAN: 'Impressions of English Bird-Life.' Illustrated by lantern slides.

WILLIAM L. BAILY: 'Exhibition of Lantern Slides.'

THOMAS S. ROBERTS: 'A Lapland Longspur Tragedy.' Illustrated by lantern slides.

WILLIAM L. BAILY: 'Similarity of the Birds of the Maine Woods and the Pocono Mountains, Pa.'

WELLS W. COOKE: 'Discontinuous Breeding Ranges.' Illustrated by lantern slides.

ABBOTT H. THAYER: 'The Principles of the Disguising Coloration of Animals.' Illustrated with experiments and slides.

C. W. BEEBE: 'The Collection of Birds in the New York Zoological Park.'

DR. MONTAGUE R. LEVERSON: 'Contribution to the Natural History of the English Cuckoo, with a Review of the Literature on the Subject.'

DR. J. DWIGHT, JR.: 'Plumages and Status of the White-winged Gulls of the Genus *Larus*.'

ARTHUR T. WAYNE: 'Contribution to the Ornithology of South Carolina, Pertaining Chiefly to the Coast Region.'

O. WIDMAN: 'Should Bird Protection Laws and their Enforcement be in the hands of the National Government?'

GEORGE K. CHERRIE: 'The Hoatzin and other South American Birds.' With exhibition of specimens.

WILLIAM L. FINLEY: 'Among the Water Birds of Southern Oregon.' Illustrated by lantern slides.

The next annual meeting will be held in Washington, D. C., commencing November 12, 1906.

JOHN H. SAGE,  
*Secretary.*

#### SCIENTIFIC BOOKS.

SOME RECENT TEXTS IN GENERAL AND ORGANIC CHEMISTRY.

*Conversations on Chemistry.* By W. OSTWALD, Professor of Chemistry in the University of Leipzig. Authorized translation by ELIZABETH CATHERINE RAMSAY. Part I., General Chemistry. New York, John Wiley & Sons. Pp. v + 250. 12mo. \$1.50.

*Descriptive Chemistry.* By LYMAN C. NEWELL, Ph.D. (Johns Hopkins), Professor of Chemistry, Boston University. Author of 'Experimental Chemistry.' Boston, D. C. Heath & Co. Pp. vi + 590. 12mo. \$1.20.

*The Elements of Chemistry.* By M. M. PATTISON MUIR, M.A., Fellow and Praelector in Chemistry at Gonville and Caius College, Cambridge, Philadelphia, P. Blakiston's

Son & Co. Pp. xiv + 554. 8vo. \$3.50 net.

*A Compendium of Chemistry*, Including General, Inorganic and Organic Chemistry. By Dr. CARL ARNOLD, Professor of Chemistry in the Royal Veterinary School of Hanover. Authorized translation from the eleventh enlarged and revised German edition by JOHN A. MANDEL, Sc.D., Professor of Chemistry, Physics and Physiological Chemistry in the University and Bellevue Hospital Medical College. New York, John Wiley & Sons. Pp. xii + 627. 8vo. \$3.50.

*A Text-book of Organic Chemistry*. By WILLIAM A. NOYES, formerly Professor of Chemistry in the Rose Polytechnic Institute, now Chief Chemist in the Bureau of Standards, Washington, D. C. New York, Henry Holt & Co. Pp. xvii + 534. 12mo. \$1.50.

*Praktische Uebungen zur Einführung in die Chemie*. Von Dr. ALEXANDER SMITH, Professor für Chemie an der Universität Chicago. Nach einer vom Verfasser besorgten Umarbeitung der zweiten amerikanischen Auflage ins Deutsche übertragen von Professor Dr. F. HABER und Dr. M. STOECKER. Karlsruhe, Druck und Verlag der G. Braunschens Hofbuchdruckerei.

*Experiments Arranged for Students in General Chemistry*. By EDGAR F. SMITH, Professor of Chemistry, University of Pennsylvania, and HARRY F. KELLER, Professor of Chemistry, Central High School of Philadelphia. Fifth edition, enlarged, with 40 illustrations. Philadelphia, P. Blakiston's Son & Co. Pp. 92, with blank pages inter-bound. 12mo. \$0.60.

*Conversations on Chemistry*.—This is the authorized translation of the first volume of Ostwald's 'Die Schule der Chemie,' which was published in 1903. The book has attracted wide attention, not only because of the renown of its author, but also because of the novel way chosen for presenting the subject. In his 'Grundlinien,' translated under the title of 'The Principles of Inorganic Chemistry,' Ostwald has presented the subject to the mature student. In his 'Conversations,' however, the author addresses himself to distinctly

elementary pupils. The form chosen for presenting the subject is the dialogue, 'because after several attempts it appeared to me the most suitable; moreover, I have come to the conclusion that it occupies no more space than an ordinary description, while the impression it makes is much more penetrating and lively.' The conversation takes place between the master and the pupil. The topics of conversation include such subjects as substances, properties, solutions, melting and freezing, density, compounds, elements, oxygen, hydrogen, nitrogen, air—thirty topics in all. The following will give an idea of the method of discussion:

*Master*. Have you ever looked at a candle burning? Yes? Then describe to me what you saw.

*Pupil*. When you light a candle it burns down till it is all gone, and during this it has a hot, bright flame.

*M*. Right. What is necessary for burning?

*P*. Well, the candle.

*M*. Nothing else?

*P*. Not that I know of.

*M*. If you put the burning candle in water—

*P*. It goes out.

*M*. Why? What is different from before?

*P*. It has no more air.

The master then shows by simple experiments and judicious questions that air is necessary for the combustion and that carbon dioxid is formed in the process. The interest and enthusiasm of the pupil lead to many expressions that the translator no doubt had difficulty in rendering in English; thus when the master explodes a mixture of hydrogen and air, the pupil exclaims, 'By jove! what a thundering crack!' and again when the soap bubble inflated with hydrogen rises like a balloon, 'Oh, how ripping!'

The book is not adapted as a text for students; neither could teachers follow it literally. On the other hand, no teacher could read it carefully without gaining much that would be helpful to him in presenting the subject of elementary chemistry. No one who has the knowledge of the 'master' and the happy way of presenting it could fail to attract and interest the pupil. The chief value of the book must lie, therefore, in showing

something of the spirit and the methods best adapted for arousing the interest of young pupils in elementary science.

The second and final volume of the 'Die Schule der Chemie' appeared in 1904. In this volume the author discusses in the same style some of the more important elements and compounds. The translation of this is promised soon.

*Newell's Descriptive Chemistry.*—This book is true to its title—a descriptive chemistry. In the preface the author tells us that the 'book is intended for teachers who wish to emphasize the facts, laws, theories and applications of chemistry.' The order of treatment is that which has recommended itself to most authors of elementary texts, no attempt being made to follow strictly the periodic classification; in fact the discussion of the periodic law is postponed until the next to the last chapter in the book. The book is divided into two parts. The first part consists of 436 pages of text with an appendix of 15 pages. The second part (100 pages) contains the experiments. There is an index of 36 pages.

The general subject is treated in a comprehensive and interesting way. As the title would indicate, considerable space is given to the applications of chemistry. Thus nearly four pages are devoted to the manufacture of coal gas. The theoretical side, however, has not been neglected. The experiments are well chosen and are such as can be performed readily by elementary students. But few quantitative experiments are included. At the end of each chapter is a complete list of questions on all the topics discussed in the chapter.

The book is a companion volume to the author's 'Experimental Chemistry.' These two books, 'The Experimental Chemistry' and 'The Descriptive Chemistry,' seem to the reviewer to represent rather the extreme views of the advocates of the two methods of teaching chemistry. It is a question whether the good features of the two could not be combined, making a text which would meet the approval of a larger number of teachers. It is doubtful whether the complete lists of questions appended to each chapter add to the

value of the book. It is certain that many students will turn at once to these lists and the book then degenerates into a sort of catechism.

A number of full-page cuts of distinguished chemists add to the appearance and value of the book.

*Muir's Elements.*—According to the preface, the objects of the book are: "To present some of the fundamental facts, generalizations, principles and theories of chemistry, lucidly, methodically and suggestively, to train the student in a few of the methods of investigation and reasoning which have been used in the past and some of the methods which are used to-day, for discovering and coordinating the connections between the properties and the compositions of systems of homogeneous substances; to attempt to lay the foundations of chemistry in such a way that the student may be prepared for going more deeply into the science, if he wishes so to do." The author also adds: "I hope I have not merely added one more illustrated catalogue of chemical odds and ends to the many which have already appeared under the title of 'A Text-book of Chemistry.'" Surely the author has 'hitched his wagon to a star.'

The book is divided into twenty-six chapters. Of these the first five are devoted to the definitions of chemical terms, the statement of the laws of combination, the determination of the combining weights of elements and the reacting weights of compounds and the representation of interactions by means of formulas and equations. Then follows a study of hydrogen, oxygen, nitrogen, sulphur, potassium, sodium, iron (note the order) and other elements, with chapters interspersed on oxidation and reduction, the molecular and atomic theory, the periodic law and the measurement of thermal values of chemical changes.

The text is similar to Ostwald's 'Grundlinien' in that the molecular and atomic theories are given comparatively little prominence. Thus while the first half of the book abounds in formulas and equations, these are all explained from the standpoint of combining weights and reacting weights, the latter term being defined as 'the quantity by weight of the com-

pound denoted by the expression of its composition by the smallest possible whole numbers of combining weights of the elements which form it.' The atomic theory is first mentioned on page 341, Avogadro's law on page 352. Considerable prominence is given to energy changes accompanying chemical changes. Many references to and quotations from the writings of Dalton, Davy and others impart an historical flavor to the book. An appendix of fourteen pages treats of the general characters of the eight groups of elements.

The author has certainly been successful in not producing 'a catalogue of chemical odds and ends.' Whether the method of treatment is an improvement upon the more common methods is a question that must be decided by trial in the lecture room.

*Noyes's Organic Chemistry.*—The author states in his preface that "an attempt is here made to present the fundamental principles of organic chemistry for the use of those beginning the subject. The most radical departure from the method of treatment adopted in other books treating of the same subject consists in the dropping of the division into 'fatty' and 'aromatic' compounds and in the adoption of what appears to the author a more fundamental and logical classification."

The subject-matter is divided into twenty-five chapters. Of these, chapters I. and II. deal with purification and analysis of compounds, the determination of molecular weights and formulas and a general discussion of the physical properties of organic compounds. Chapters III. to VIII., inclusive, treat of the hydrocarbons. In chapter IX. is given the classification of the derivatives of the hydrocarbons. The remaining chapters are devoted to a discussion of these derivatives.

The most striking feature of the book undoubtedly lies in the fact that the time-honored classification of the compounds into the so-called 'fatty' and 'aromatic' classes is set aside and the corresponding members of each class discussed together. While this is a very radical departure, there is no question but that the method chosen is a logical one and at least well worth a trial in the lecture room. The

book bears unmistakable evidence that its author has been an enthusiastic worker in the field of organic chemistry and that he has given to the student, in so far as the space would permit, a clear and comprehensive discussion of the science as it exists to-day. It is a question whether some of the general reactions discussed might not have been illustrated by simpler examples. As the author states in his preface, however, 'no two authors would make the same selection, and that here given is doubtless open to just criticism at some points.'

To write an elementary text in a science which includes a study of over 100,000 compounds besides a number of growing theories is not an easy task, and the person who does this successfully is certainly deserving the commendation of the teachers of the science. Noyes's text must be regarded along with Remsen's as the best of modern elementary texts of organic chemistry.

*Smith's Praktische* is the German translation of his well-known 'Laboratory Outline or General Chemistry,' which is undoubtedly one of the best of the 'laboratory outlines' for mature students.

*Smith and Kellar's Experiments* has deservedly reached its fifth edition. The experiments are well chosen to illustrate the principles of chemistry. A number of quantitative experiments are included.

WILLIAM MCPHERSON.

#### SCIENTIFIC JOURNALS AND ARTICLES.

*The Journal of Experimental Zoology* for November, 1905. T. H. Morgan ('Polarity' considered as a phenomenon of gradation of material) discusses in the light of some new experiments with the hydroid Tubularia the so-called 'polarity' of organisms, as seen especially in the phenomenon of regeneration. The author advances the hypothesis that organic 'polarity' is an expression of the gradation of the organ-forming substances present in the adult. These substances are traceable to the egg, which owes its development in part to their localization. The phenomena of development and of regeneration are thus brought under a common point of view. H. S.